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EXAMINER

KUNEMUND, ROBERT M

ART UNIT

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13

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 13

Application Number: 09/732,799
Filing Date: December 08, 2000
Appellant(s): NAKAMURA ET AL.

Terryence F. Chapman
For Appellant

EXAMINER'S ANSWER

FAX RECEIVED
JUL 01 2003
TC 1700

This is in response to the appeal brief filed April 1, 2003.

(1) Real Party in Interest

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A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 17 to 19 and 21 to 32 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

5,328,548

Tsuji et al

7-1994

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5,451,430	Anthony et al	9-1995
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08-141385	Nakamura et al	6-1996
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(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 17 to 19, 21, 22 and 32 stand rejected under 35 U.S.C. 103(a) a being unpatentable over Tsuji et al in view of Anthony et al.

The Tsuji et al reference teaches a diamond and process for formation. In a chamber, an isotopically pure diamond starting materials are placed with catalysts and a nitrogen flux. The chamber is subjected to high pressure and high temperatures to produce an isotopically pure diamond. The sole difference between the instant claims and the prior art is the doping of the diamond with boron. However, the Anthony et al reference teaches an isotopically pure diamond, col. 3 lines 20-28 and doping with boron col. 6 lines 60-65. It would have been obvious to one of ordinary skill in the art to modify the Tsuji et al process by the teachings of the Anthony et al reference to dope the diamond in order to enhance the properties in the diamond.

Claims 23 to 31 stand rejected under 35 U.S.C. 103(a) a being unpatentable over Tsuji et al in view of Anthony et al.

The Tsuji et al and Anthony et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the carbon source. However, the Nakamura et al reference teaches using flaky pyrolytic carbon as a source for diamonds, note abs. It would have been obvious to one of ordinary skill in the art to modify the

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Tsuji et al reference by the teaching of the Nakamura et al reference to use flaky pyrolytic carbon in order to shorten formation times.

(11) Response to Argument

The rejection under 35 U.S.C. 112 first paragraphs over claim 27 has been withdrawn in view of the amendment to claim 27.

It is duly noted, that appellants have not submitted any references to back the assertion that boron doping with lower thermal conductivity of an isotopically pure diamond. It has been argued that doping with boron in isotopically pure diamond goes against the teachings of the art. However, there is no evidence of record to support appellants' statements. It is also, pointed out that claim 23 is noted limited to thermal conductivity and isotopical purity.

Appellants' argument concerning the Tsuji et al reference at col. 4 lines 59-67 is noted. However, the reference is referring only to nitrogen impurity. The reference teaches using a gettering agent as in done in the instant application to remove nitrogen from the starting diamond source. The removal of nitrogen from the diamond cannot be generally be applied to the removal of other impurities. This instant brief discusses differences between atoms of different materials. Thus, appellants are showing that each element is different and would inherent effect the diamond differently. The reference also teaches using an isotopic purity, which relates merely to carbon isotope purity. There is no teaching in this reference, which states one of ordinary skill in the art cannot dope a diamond or that such doping would ruin a diamond.

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Appellant's argument concerning the Anthony et al reference has been considered and not deemed persuasive. The Anthony reference is relied on sole to show the art conventionality of doping diamonds with boron. The affect of boron doping on a diamond is the same regardless of formation means. The chemistry between the carbon and boron is the same and does not change due to process steps. Also, the fact that applicants have a different reason for doing what is suggested by the prior art is not demonstrative of unobviousness, note In re Kronig 190 USPQ 425.

As admitted in this Brief, the Anthony reference teaches boron doping levels, which clearly read on the claimed ranges. Therefore, the diamond doped with the boron in the combined references would inherently have the same properties, thermal conductivity and semiconducting properties. It is the same carbon starting material doped with the same amounts of boron.

Appellants' argument concerning the combination of references is noted. However, as set forth in the Brief the Anthony et al reference gives clear and concise reasons for the addition of boron. This is to reduce intrinsic stress. Further, the Anthony reference at col. 3 lines 15-25 discloses the use of isotopically pure diamond starting materials. The reference does encompass a doped isotopically pure diamond. The examiner has shown a clear line of reasoning for the combination of references.

Appellants' argument concerning the Nakamura et al reference has been considered and not deemed persuasive. The reference is relied on to show that flaky carbon is an art conventional starting material. Since, the examiner's position is that

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The Tsuji et al and Anthony et al references are properly applied to reject the claims, the addition of Nakamura et al is also proper to reject the other claims.

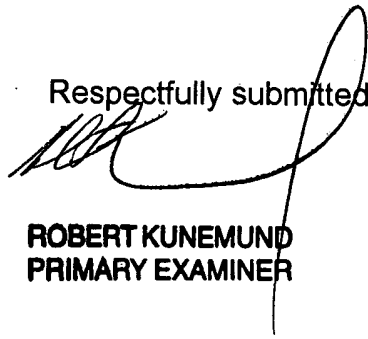
Appellants' argument concerning claim 27 is noted. However, the specification teaches that the limitations of claim 27 is well known in the art and gives a reference as a citation. This citation on page nine of the specification where appellants in this brief state there is support for claim 27 is the applied Nakamura et al reference by the examiner. Thus, claim 27 is properly rejected.

Appellants' argument concerning the examples in the specification has been noted and not deemed persuasive. None of the examples are the closest prior art of record. The only diamond doped with boron outside appellants range is not an isotopically pure diamond but traditional diamond, which the art teaches, has lower thermal conductivity. There are no examples showing that the range of boron is critical. Also, claim 23 is not as limited as the examples.

For the above reasons, it is believed that the rejections should be sustained.

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Respectfully submitted,



**ROBERT KUNEMUND
PRIMARY EXAMINER**

RMK
June 30, 2003

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